

Recommended Revisions to Directive 10-506

The ISST

Weekly Digital Services Conference Call

4 October 2004

Outline

- Background and review process
- Documents distributed
- Specific changes and recommendations
 - Main body of directive
 - Appendix A – Part A
 - Appendix A – Part B
- Upcoming review process



NWSI 10-506 Overview

- NWSI 10-506 is a critical directive formally launching the NWS into the digital era
- Provides a framework for digital products and services
- Targets both internal and external audiences
- Describes basic digital data infrastructure
- Provides some “how-to” instructions
 - timeliness
 - collaboration
- Provides descriptions of non-text, digitally-based products
 - graphics
 - interactive products

Background

- 10-506 development effort started in early 2003
 - Initial recommendations came from NDFD IWT
 - Doug Young, OS22 – Team Leader
 - Team effort to build consensus
- Early timeline for Spring 2003 issuance slipped
 - Tough job!
- IOC last fall required a directive be in place
 - Some issues were tabled in order to move ahead
 - In some cases, not enough was known to make a decision
- Current version has an issuance date of 12/19/03 and an effective date of 2 January 2004
- May, 2004, LeRoy Spayd (DSPO) requested ISST review directive and make recommendations

ISST review process

- Individual and team review process
- Generally via conference calls and email
- Used external expert opinion when possible
- On a few critical issues, Region and National opinions were solicited
- First step in revisiting the directive

Review documents and plans

- An edited version of the Direction 10-506
- A companion document
 - Provides additional explanation and background material

Key factors – Overview and main body

- Dual audience complicates content
 - Remove detailed internal issues and place in memoranda, training material, and/or policy statements
- Clarified wording between NDFD and other digital products and services
- “near-seamless” is preferred over “seamless”
 - Well collaborated (within tolerances), but seamless can not be achieved
- Greater clarification of roles of national centers
- Remove ambiguity of day 1 wording

Key factors – Overview and main body

Issue: NDFD vs. LDFD in both temporal and spatial scales.

- LDFD has resolutions not captured by NDFD sampling
- NDFD spatial construction does not upscale LDFD
- NDFD weather, sky, etc., grids are values extracted from the LDFD at defined times and there is no attempt to construct temporal averages

Proposal: At this time the ISST doesn't have a specific recommendation, rather it encourages necessary discussions and forums to develop a central vision. Possible considerations include:

- Increase resolution of NDFD to 2.5 km
- Require LDFD's match NDFD resolution
- Take advantage of potential strengths in maintaining differences
 - Requires upscaling correctly from LDFD
 - Delivers local information with greater temporal and spatial resolution

Key factors – Appendix A, Part A

Issue: Grid point vs. Grid Box interpretation differences of NDFD elements must be eliminated.

- Much confusion (internal and external) on what is being presented
- Grids are not intended to represent a matrix of point forecasts
- Grid point forecasts are different in scale and character from a MOS point forecast

Proposal: We recommend a definition that explicitly equates each point to be representative of the conditions expected over the appropriate time period and across the 5 by 5 km grid box. Further, we include discussion addressing the scales of physical processes being forecast.

Key factors – Appendix A, Part A

Issue: The use of “continuous” to describe the NDFD is inconsistent with its construct.

- The NDFD presents a coarse sample of the LDFD without any effort to correctly upscale spatially or temporally.
- For example, the LDFD may have details about the timing of clouds or precipitation that are not captured in the NDFD.
- The LDFD, at its 1-h discretization, could more closely be considered “continuous.”

Proposal: We recommend using “complete” to describe the NDFD.

- This, in fact, describes well the NDFD, which can be sampled without having missing values.

Key factors – Appendix A, Part B

Issue: A mix of internal and external grids in an Appendix that, by title, is intended to describe the NDFD.

- This includes such grids as the floating PoP, which is not part of the NDFD, and is only used for internal text product generation.

Proposal: Remove them from the appendix.

- If additional internal elements are required, this information should be conveyed through internal memoranda, training materials, and policy statements from Regions and Headquarters.

Key factors – Appendix A, Part B

Issue: The PoP is presented throughout the NDFD for 12-h time periods only. Objective guidance and current capabilities offer greater time resolution than this and that should be taken advantage of within the NDFD.

Proposal: Create a PoP6 grid and maintain it for the first 72 hours of the forecast.

- This matches objective guidance.
- A correct derivation from PoP6 to PoP12 can be done to complete the PoP12 grid for the first 72 hours. So, even though a grid is being added, it doesn't require substantially more work.

Key factors – Appendix A, Part B

Issue: The directive requires precipitating weather be included for all times when the PoP is at least 15%, so weather is required for entire 12-h periods even if the forecasters know the threat is not uniform.

- This is the reason why some offices (and the existing directive) have developed floating PoP. This 15% criteria is then applied to the floating PoP grid to gain better temporal resolution for formatters, etc.

Proposal: Eliminate the floating PoP12 grid and have the weather grid be floating (and dominate) to allow fine specification (1 h discretization) of weather.

- There will be times when the PoP12 or PoP6 grid values are large, but no weather is given.
- It requires a simple logic to check the weather grid to determine if the time of concern is the time of the corresponding precipitation threat. This would be done with the formatters.

Key factors – Appendix A, Part B

Issue: QPF definitions and practice are not valid.

- The PoP is presented as a deterministic forecast...i.e., “the total amount of expected” precipitation. In that case, for PoPs less than 50% the QPF should be zero.
- Yet, the directive requires precipitating weather be included for all times when the PoP is at least 15%. This causes a large over-forecasting error for PoPs less than 50%.
- Areas with typically low PoPs wanted capability to show threat of measurable precipitation.
- During strong convection, but low PoPs, there is the need to be able to convey the threat of rather extreme amounts of precipitation.

Proposal: Correctly use the QPF6 grid as a deterministic QPF.

- In general application assign zero QPF6 for PoP less than 50%.
- Allow forecaster discretion for PoPs between 15 and 50% during high likelihood of occurrence of showers but low PoPs.

QPF (continued)

Proposal (cont): Create an additional grid, called Maximum QPF (MQPF), which represents the 90th percentile of the conditional QPF distribution.

- In other words, you are at the 90% likelihood that the observed precipitation amount will be less than or equal to the MQPF value.
- This gives an effective way to communicate a threat of heavy precipitation.
- MPQF would be non-zero for PoPs 15% and higher.
- Currently only limited guidance available, so efforts would need to be put in place to provide it.

What next?

- Circulate documents and solicit feedback
- Initial discussions today
- Planning an ISST Forum for later this month
- Engage Regions and Headquarters
- Final recommendations and feedback to DSPO and Doug Young for further action